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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/506,224	02/17/2000	Masashi Shiraishi	5267-49DIV	6828

7590 05/13/2003

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EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 05/13/2003 10

Please find below and/or attached an Office communication concerning this application or proceeding.

1.K

Office Action Summary

Application No.

09/506,224

Applicant(s)

SHIRAISHI ET AL.

Examiner

Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 19-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-18 and 24-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/033,789.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The applicants' amendment filed 2/25/03 (Paper No. 9) has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Election/Restrictions

3. Claims 1-12 and 19-23 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Specification

4. The examiner has revisited the objection to the specification in the last Office Action and has withdrawn the objection. The changes in the amendment filed 2/17/00 were accepted in the prior application and appear in U.S. Patent 6,084,746.

Claim Rejections - 35 USC § 102

5. Claims 13, 14, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by either Hosokawa et al 5,014,145 or Japanese Patent Publication, JP 6-195668, referred to hereinafter as JP'668.

Hosokawa discloses a method of fabricating a magnetic disc device comprising: mounting a head IC chip 8 on a connecting device at a mounting position (flexible circuit 9 in Fig. 3); selecting the mounting position of the IC chip 8 on the connecting device 9 (shown in Fig. 4).

Regarding Claim 17, Hosokawa shows the IC chip facing the magnetic disc 7 where the IC chip is located inside an outer periphery of the magnetic disc (see Fig. 2).

JP'668 discloses a method of fabricating a magnetic disc device comprising: mounting a head IC chip 28 on a connecting device (circuit 25 in Fig. 1); selecting a mounting position of the IC chip 28 on the connecting device 25 (shown in Fig. 2).

Regarding Claim 17, JP'668 shows the IC chip facing the magnetic disc 7 where the IC chip appears to be located inside an outer periphery of the magnetic disc (shown in Fig. 8).

With respect to the limitations of "to be located...in operation" (lines 9-12 of Claim 13 and lines 10-13 of Claim 18), these limitations have not been given any patentable weight and do not patentably further limit the claimed manufacturing method since these limitations only affect the operation of the magnetic disc device in a futuristic event, after fabrication, and not during the actual fabrication of the magnetic disc device.

Claim Rejections - 35 USC § 103

6. Claims 13, 14, 16-18, 24, 25, 27, 28 and 29, alternatively, are rejected under 35 U.S.C. 103(a) as being unpatentable over either Hosokawa et al or JP'668, in view of Frater et al 4,443,824.

Regarding Claims 13, 14, 17 and 18, if applicants believe that the operation of the magnetic disc device is somehow related to the fabrication of the magnetic disc device, then Frater teaches that rotating the magnetic disc during operation with the IC chip mounted and that the IC chip is exposed to a flow of air produced by the rotations of the magnetic disc (see col. 1, lines 10-14). Frater seeks to improve this cooling affect by reducing the mass of material of the suspension structure for better cooling and better production output (see col. 2, line 56 to col. 3, line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of either Hosokawa or JP'668 by reducing the mass of the suspension structure, as taught by Frater, to improve the cooling and production output of the magnetic disc device during operation.

Regarding Claims 16, 24, 27 and 29, the values claimed for the mass of the IC chip and the distance between the IC chip and the magnetic disc, are considered to be effective variables within the fabrication or operation of the magnetic disc device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the specific claimed values for mass and distance, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

7. Claims 15 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Hosokawa et al or JP'668 in view of Frater et al, as applied to claims 13 and 24 above, and further in view of Olyphant et al 3,832,769.

The prior art of either Hosokawa et al or JP'668, as modified by Frater et al, teaches the claimed manufacturing method as previously discussed. However, the prior art above does not teach flip-chip bonding.

Olyphant teaches flip chip bonding to solve of the problems of short circuiting and control of solder (see col. 1, lines 17-23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the prior art by flip chip bonding the IC chip to the connecting device, as taught by Olyphant, to positively prevent short circuiting and provide better solder control.

Response to Arguments

8. Applicant's arguments filed 2/25/03 (Paper No. 8) have been fully considered but have not been deemed to be found as persuasive.

In regards to the merits of Hosokawa et al and JP'668, the applicants contend that neither teach a specific mounting position of the IC chip either related to a location of facing the magnetic disc, or related to a location of exposing the chip to a flow of air during rotation of the magnetic disc.

The examiner most respectfully traverses. First, Hosokawa shows (in Fig. 2) the IC chip 8 facing the magnetic disc 7 and JP'668 shows (in Fig. 7) the IC chip 28 facing the magnetic disc 7. Each show a specific "mounting position" in which the IC chip is both mounted and selected. With respect to the effects of cooling the IC chip by exposing it to a flow of air, clearly the scope of the claims is directed to fabricating a magnetic disc device (as defined by the preamble) and

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not operating a magnetic disc device. The examiner's position is that the limitations of "to be located...in operation" (lines 9-12 of Claim 13 and lines 10-13 of Claim 18) are further events that occur during the operation of the device and not during fabrication of the device and thus, do not constitute a positive or manipulative difference in the fabrication of the device.

In regards to the merits of Frater et al, the applicants' urge that Frater does not teach selecting a mounting position of the IC chip so that the IC chip is always exposed to a flow of air produced by the rotation of the magnetic disc.

The examiner traverses. For further clarification, Frater teaches a specific mounting position of an IC chip (either modules 52 or 54) related to the location of the disc itself and certainly the flow of air would surround the IC chip for cooling since Frater does not teach that the chip is mounted or located within any vacuum during rotation of the magnetic disc. Frater certainly attempts to solve the problems of dissipating heat from the IC chip through the structure of the access arms (see col. 1, lines 21-35). This form of heat transfer to dissipate the heat from the IC chip would inherently be through convection heat transfer since air flow surrounds the IC chip, as well as the access arms. Therefore, the examiner's position is that Frater does teach a mounting position of the IC chip such that the chip is exposed to a flow of air produced by the rotation of the magnetic disc to achieve heat dissipation.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

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USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the problems solved by Frater et al in improving the cooling effect of mounting an IC chip would certainly be beneficial and a necessary motivation to one of ordinary skill in the art of magnetic disc devices.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

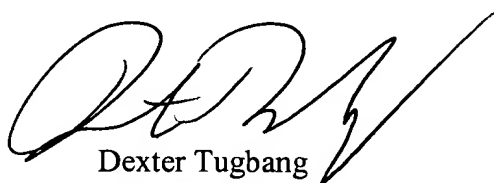
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-305-3590 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0858.

A handwritten signature in black ink, appearing to read 'D. Tugbang', with a long, sweeping horizontal stroke extending to the right.

Dexter Tugbang
Primary Examiner
Art Unit 3729

adt
May 9, 2003